



ENGINEERS

CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.

Summit Township Sewer Authority

June 15, 2004

Page 2

155 West 8th Street

(Route 19) that carries the flows from Interchange Road and Route 99. Summit's 24-inch on Route 19 only carries the Route 19 flows.

Erie, Pennsylvania 16501

It appears that the Route 19 sewer has sufficient capacity for ultimate development (except perhaps its crossing of Interchange Road), but that the Interchange Road sewer does not. However, 2014 flows can be handled.

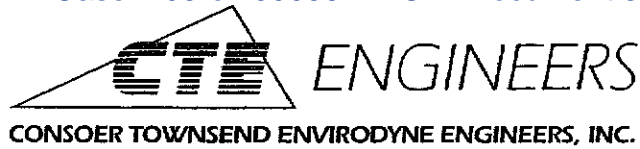
Phone: (814) 453 4394

Fax: (814) 455 6596

2.
 - a) Table S-3 did not use Summit's projected peak flow of 2.3 MGD to determine existing flows. That was based on the 9/29/03 overflow event and was independent of your estimate of peak flow. Table S-3 does use 2.3 MGD to determine the ultimate flow increment needed to reach 3.9 MGD after deducting the 2014 growth increment. Our study confirms your 2.3 MGD estimate to be reasonable at the design storms 2004 flow of 6,400 gpm with an estimate contribution from Summit of approximately 24%.
 - b) MTSA agrees the peak flow definition needs to be revisited and that a lengthier time interval than 15 minutes for determining participation is appropriate, particularly since storage will be used to equalize peaks. The study's present calculation of cost sharing (24% Summit) is based on a comparison of the average of the values in peak flow intervals varying between one to three days. Little difference in the 24% figure is expected for other intervals (the March 20th 15-minute interval differential was only 25%). MTSA will agree to visit the peak flow definition of the 1994 agreement and revise it if necessary to reflect an appropriate equivalent unit of measurement that will encompass and define the true impact of a high flow event.
 - c) MTSA agrees the Agreement should be revised to reflect changes in 2014 and in ultimate flows.
3. The study reflects a ten-year planning period based on an average annual growth. Thus its calculation of participation is independent of annual or semiannual variations. It does allow for adjustments in year

MSA-MT 2304

App. 351



Summit Township Sewer Authority
June 15, 2004
Page 3

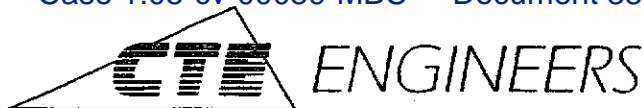
2014 if flows differ from those projected over the entire decade. Thus we see no need to address the impact of an annual discrepancy in the number of connection EDU's granted. Once the Consent Agreement constraints are removed, there is no reason growth cannot occur at annual rates above 88 per year. Growth is limited only by the ten-year flow projection. There presently is no reason to believe Summit will not receive an average of 88 units annually.

However, we have discussed your concerns (regarding connections allowed during the interim period until construction of the pump station improvements are complete) with the MTSA and the Millcreek Township supervisors. We have stressed, as you have asked, that since the STSA is committing to pay the cost of the facilities necessary to transport up to an average of 88 EDU's per year over ten years, that Millcreek reconsider allowing additional connections under the memo of understanding (MOU).

We believe Millcreek will revisit the MOU regarding annual connections once all municipal commitments are in place and the Special Study has been submitted. In the interim they will continue to proceed as dictated by the MOU to consider requests above those defined by the memo. The Special Study, however, is not involved in such negotiations nor is its accurateness impacted by the outcome of such negotiations. Thus, no further discussions of the MOU will be entered into the body of the study.

4. MTSA will certainly provide for electronically recording flows discharged from the station both to Erie and to storage as part of the station upgrade. The time interval of that recording will be 15 minutes or another mutually agreeable interval to allow for cost sharing to be obtained.

No comment is believed necessary on the STSA position on Recommended Plan Approach since it appears you concur.



CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.

Summit Township Sewer Authority

June 15, 2004

Page 4

We believe we have addressed your stated concerns and ask that you so advise the Summit supervisors..

Very truly yours,

CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.

Gerald C. Allender, P.E.

Project Manager

GCA:lb

cc: Summit Township Supervisors
Tim Sennett, Esq.
Millcreek Township Supervisors
Millcreek Township Sewer Authority
Evan E. Adair, Esq.
George Joseph, Esq.
Doug Sceiford, P.E., Hill Engineering
Bill Steff
David Sterrett

App. 353

MSA-MT 2306

TO: Millcreek Township Sewer Authority

FROM: Jerry Allender

DATE: June 24, 2004

RE: Meeting with Summit Township Supervisors
Special Study
Kearsarge Pump Station

On Monday, June 7, 2004, the writer met with the Summit Township supervisors to discuss the Special Study completed for the Kearsarge pump station. Our discussions and the proposed resolution in that study were found on the attached agenda. Prior to the meeting the supervisors had received a letter from the Authority with a suggested resolution and with a recommendation that action be delayed until the June 21, 2004 meeting of the supervisors. Their letter mentioned that they were preparing comments and anticipated a response that would allow them to make a recommendation to the township at that time. Also acknowledged by the supervisors was a letter from the Authority to the writer in which those comments were forwarded for our consideration. The letters and the proposed resolution are attached. Also acknowledged by the supervisors was receipt of the study including the preface for which they expressed appreciation.

Our presentation followed the attached handout which included a description of the area, tributary sewers, flow estimates, percent participation in flows, project costs broken down into calculations of Summit's share. We then discussed the Millcreek Township Sewer Authority (MTSA) comments regarding the Summit Township review of the plan. The comments were formatted in consultation with George Riedesel, manager of the MTSA, and the responses represented MTSA's position which we felt would satisfy the concerns of the Summit Township Sewer Authority (STSA). We acknowledged that we would provide information regarding the transportation limitations for station flows that would originate on Edinboro Road and would clarify the fact that Rt. 99 flows were part of the study and were incorporated into the 3.9 MGD. We clarified that the MTSA would indeed consider a lengthier time interval to average flow contributions to the station which would be more indicative of the true impacts from the two communities. We indicated that the MTSA would agree to revise the agreement to reflect changes in flow volumes agreed to as part of this study. Finally, Millcreek would electronically record flows at Kearsarge at intervals of fifteen minutes or better.

In addition, we discussed the fact that the plan does call for reevaluating the contribution within ten years and thus any administrative interference with Summit's ability to grow through limitations of its EDU's could be addressed at the time adjustments were made. Further it was

stated that the overall design was based on ten years. The 88 units assumed on an annual basis were used as a means of determining the total for the ten years of 880 units. The actual rate at which those units were developed was not germane to the study, just that they would develop and that the numbers were sufficient to allow Summit to continue to grow.

We also stressed that definitely the new flow metering devices and control equipment would allow for electronically recording the flows and make them available on any interval basis, 15 minutes being acceptable.

The primary concern of the Authority of course is the interpretation of the term "peak flows" in the agreement which MTSA agrees to address. Based on this we asked the township to move to approve the resolution and we opened for questions. Questions included: from Marlin Coon what will happen in 2014 had Summit not used its capacity? We answered that would be addressed at the time as to whether Millcreek had used theirs and then decide whether expansion should progress or if there would be some negotiation to utilize the Summit flows by Millcreek allowing the future construction to be delayed if required. We outlined the fact that the ten-year planning period was set to allow for reevaluation of the storm flows anticipated, the impact of any I&I abatement, and the impact of any growth changes that might occur either in Millcreek or in Summit. Thomas Coon, township supervisor, expressed disbelief that Summit's inflow infiltration impact was similar to that of Millcreek believing that it should be much lower. We explained how we had made that determination, how we had measured flows, and they indicated that the surprise was two ways. There were those who felt Summit's contribution under high flow conditions would be significantly higher than on the average. Instead, they were about the same indicating that Summit had a similar I&I volume percentage of their flows as did Millcreek.

The Authority was asked to comment by the supervisors. Bill Steff commented that the Authority's recommendation was that the township not take any action until their June 21st meeting. The township supervisors expressed concern that waiting could result in unnecessary delays in preparing the report. The STSA indicated that they had questions and had not had a chance to consider our answers. We concurred that they had not had the chance since we only had a day to prepare those answers and did not expect that they would have been able to complete their review. We commented that we did not mean to in any way criticize the Authority, that their actions taken so far had been very expeditious and were appreciated as were the actions on the part of the township which resulted in comments from the township's engineer which had been given to the writer verbally. As a result of the discussions, the township did vote to approve the resolution subject to receipt of STSA's recommendation for approval. In the discussions during the resolution, Bill Steff talked about the cost calculation for Summit. He was not aware of that procedure. We stated that it is indeed part of the plan, part of an earlier handout made to the Authority and is found at the end of the study document on pages 44 and 45. We stated that we simply had reiterated those calculations on the handwritten page. After the

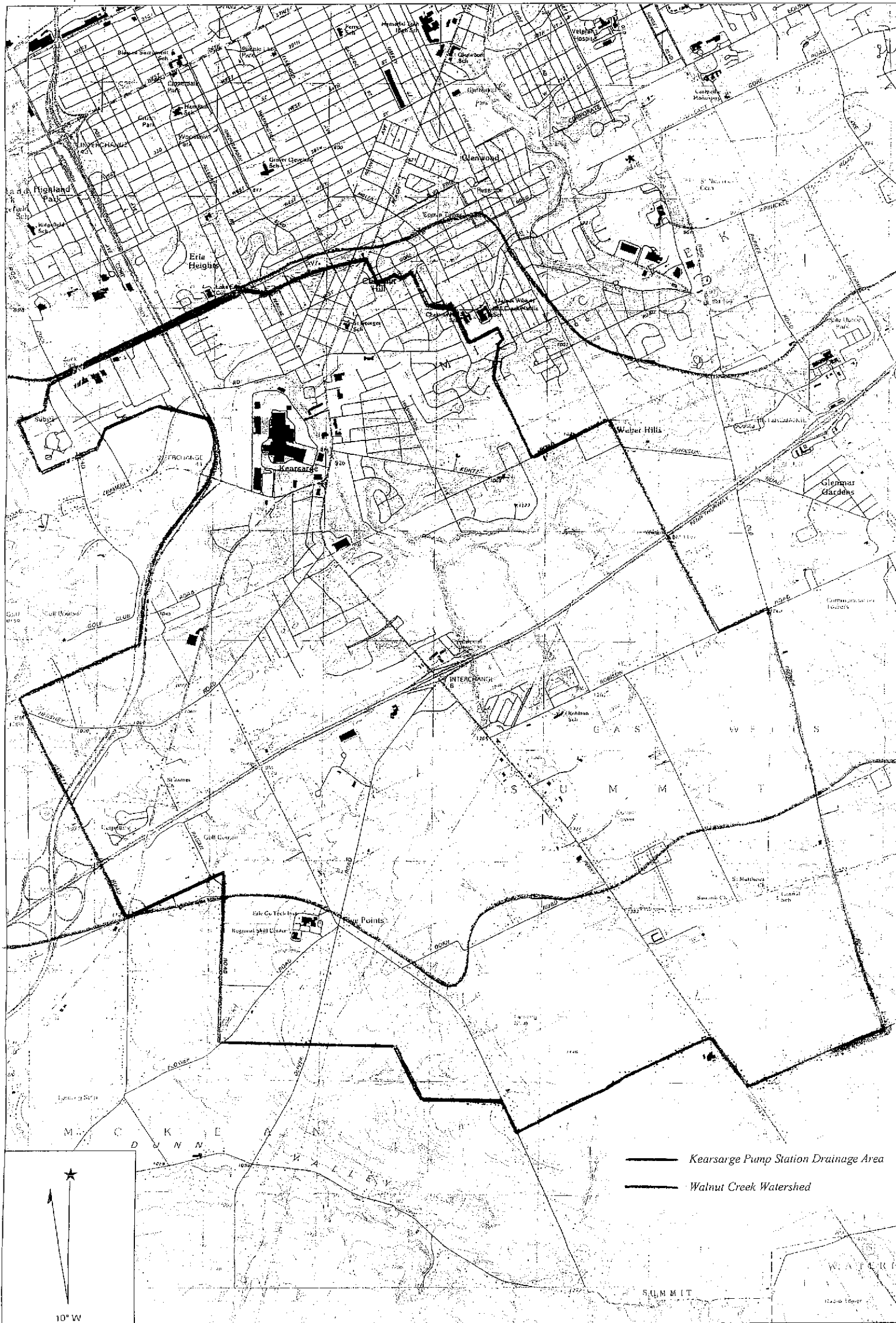
meeting I met with the Authority chairman, John Willow, and the manager, Bill Steff. Mr. Steff had expressed some concern or some desire to actually have a higher percentage contribution through 2014 and a higher flow. I don't at this point see how that can be addressed or understand his immediate concern. We'll have to address that. We discussed the 1.3 MGD reservation on Edinboro Road. They want that area to be noted as being included in their Kearsarge contribution and not just the Route 19 corridor. I agreed to that. I also stressed, however, that the 1.3 MGD capacity that was given them on Edinboro Road doesn't necessarily carry through to the Route 19 sewer which is the old Millcreek sewer and we would have to check that. I indicated that I believe there was capacity for most flows since the old Summit flows from Route 19 have been removed and put into the new 24-inch, but I indicated that we would need to have that checked. We also discussed their desire to have additional approvals at this time. They understood that this was not part of this study. I indicated dissatisfaction with the fact that they might hold this study hostage to get additional approvals. They indicated that that was not their intent, they needed to have some acknowledgement from Millcreek that they were indeed cognizant of their need for additional EDU's in proportion to what is intended in the study or 88/year versus the present 23. They indicated that they are presently at their maximum and need to get additional approvals. They understand the process where the Millcreek Authority can allow additional connections beyond the 23, but they indicated that process is very cumbersome and does not allow them to work freely with their developers. They of course would like total control of up to 88 units. I indicated to them that I would take their concerns to the supervisors and to the Authority but it was not a subject for the plan. They agreed but asked that at least some acknowledgement be made that Millcreek Township is aware and that the township is considering their request.

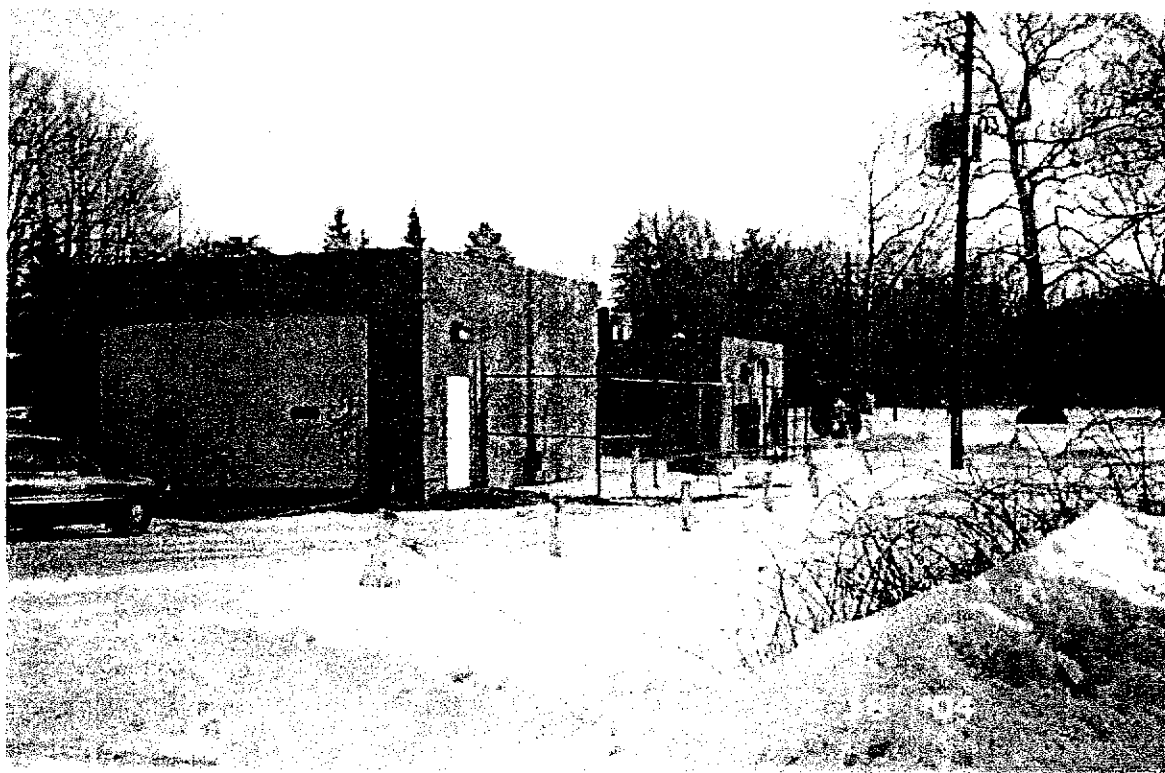
GCA/lb

SUMMIT TOWNSHIP SUPERVISORS
Regular Business Meeting
Monday, June 7, 2004
7:30 p.m.

AGENDA

1. CALL TO ORDER
2. CORRESPONDENCE
3. APPROVAL OF MINUTES OF MAY 24, 2004 MEETING
4. APPROVAL OF PAYMENT OF MAY 2004 BILLS
5. OLD BUSINESS
 - A. CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.
GERALD C. ALLENDER, P.E., PROJECT MANAGER, MTSA
 - B. CONSIDERATION OF RESOLUTION 2004-16 TO ADOPT AND ACCEPT
THE SPECIAL STUDY AS AN ADDENDUM TO MILLCREEK AND
SUMMIT OFFICIAL PLANS, SUBJECT TO RECEIPT OF STSA
RECOMMENDATION *for Approval*
 - C. APPOINTMENT OF CODE ENFORCEMENT OFFICER @__PER
HR.FOR ____HRS PER WEEK OR AS NEEDED, EFFECTIVE ____
 - D. POSSIBLE AWARD OF DESIGN AND QUOTE FOR REPLACEMENT OF
JACKSON STATION ROAD BRIDGE DECK
6. NEW BUSINESS
7. ZONING
 - A. GARY & ANN MAY SUBDIVISION (40) 16-72-42 DORN ROAD/LAURIE
DRIVE BEND
8. OTHER BUSINESS
 - A. SOLICITOR
 - B. ENGINEER
 - C. SUPERVISORS
9. PUBLIC INPUT (THREE MINUTE LIMIT)
10. ADJOURNMENT





MSA-MT 2312

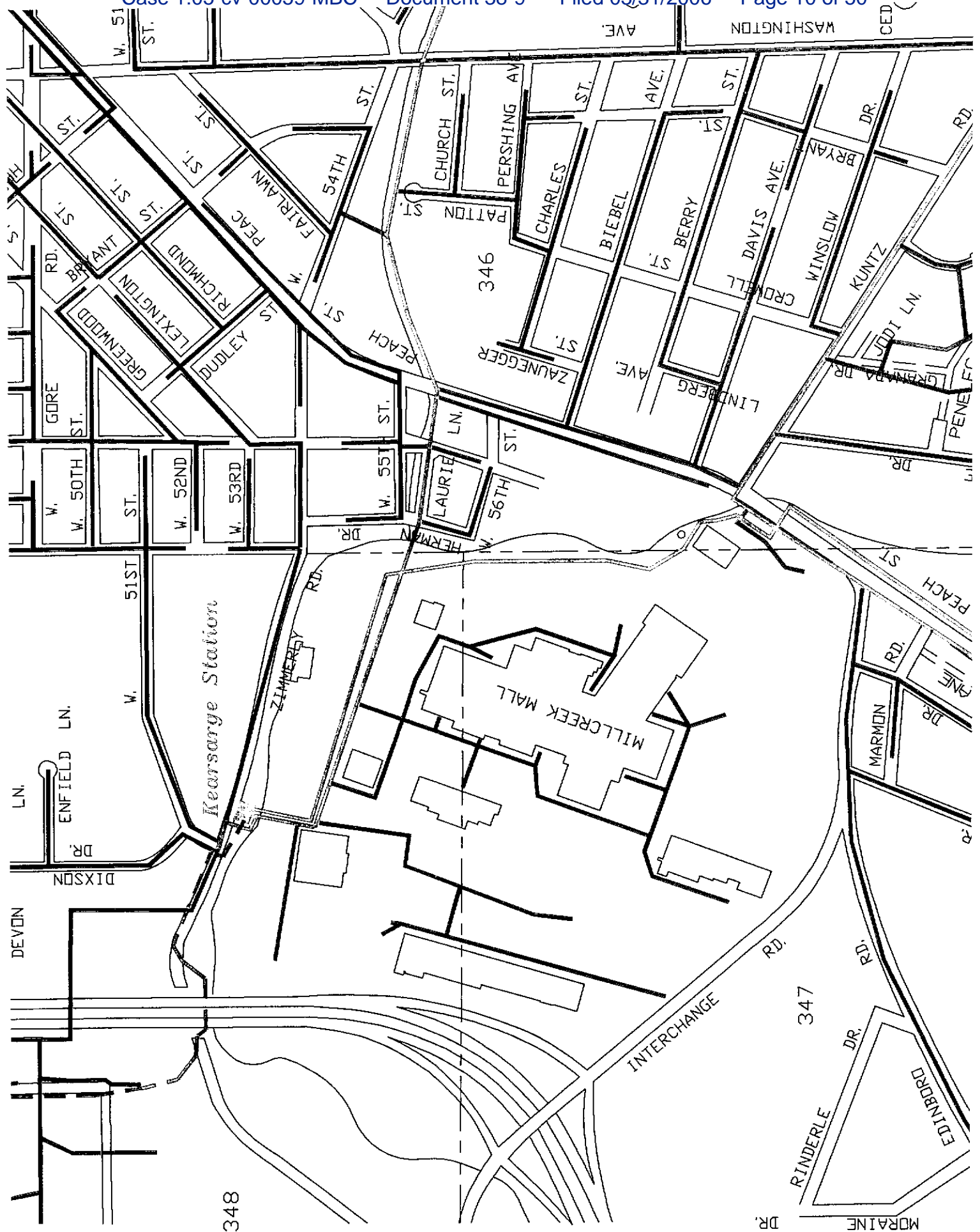


TABLE S-3 / IX-1 / X-2 MAXIMUM FLOW ESTIMATE KEARSARGE PUMP STATION				
Source	10-Year Flow Increase MGD	GPM	Ultimate Flow Increase MGD	GPM
Existing Flows		¹ 4,800		5,240
Millcreek Flows ²	0.17	120	0.192	133
Summit Flows ²	0.462	320	1.142	800
Sub-Total		5,240		6,173
Contingency Flows ³ (1-Yr. Frequency)		1,600		1,600
		6,840		7,773
Contingency Flows ⁴ (20 to 100-Yr. Frequency)		2,300		2,300
		7,540		8,473

¹. Based on 9/29/03 storm

². See Chapter X

³. See Table S-1

⁴. Based on 9/15/02 storm

maximumflowestimatetablekearsargeps.xls

TABLE VIII-5 / XIII-1
COMPARISON OF KEARSARGE METERS

	OCT '03 %	NOV '03 %	DEC '03 %	JAN '04 %	FEB '04 %	MAR '04 %	APR '04 %	AVG %
<u>K1 as a % of ΣK (10")</u>								
All Dates	20	18	17	16	18	17		
High Flow	22	16	18	-	16 & 20	18		
<u>K2 as a % of ΣK (18")</u>								
All Dates	58	58	63	62	59	62		60.3
High Flow	57	67	64	-	61 & 50	63		60.3
<u>K3 as a % of ΣK (24")</u>								
All Dates	22	24	BAD	21	22	21		22
High Flows	22	18	DATA	-	22 & 25	19		21.2
<u>S1 as a % of ΣK</u>								
All Dates	22	22	23	22	25	25		23.2
High Flow	21	24	23	-	22 & 29	25		24
<u>K3 as a % of S1</u>								
All Dates	102	107	BAD	96	90	85		96
High Flow	102	75	DATA	-	99 & 85	76		87.4
From Plots	99	102		94	88	84		93.4
<u>K4 as a % of K2</u>								
All Dates	18	17	18	17	17	17		17.3
High Flows	18	23	21	-	18	26		21.2

Note: K1 - Zimmerly Road Sewer
K2 - Beaver Run Sewer
K3 - Mall Sewer
K4 - Beaver Run Extension
S-1 - Summit Meter

comparisonofkearsargemeters.xls

TABLE S-8 / XI-1
OPINION OF PROBABLE CONSTRUCTION COSTS
MILLCREEK TOWNSHIP SEWER AUTHORITY
KEARSARGE PUMP STATION

PHASE	ITEM	COST ESTIMATE			
		PHASE 1	PHASE 2		
			ABOVEGROUND		BELOWGROUND
			CAISSONS 500,000 gal.	SPREAD 500,000 gal.	BELOWGROUND 500,000 gal.
1	Pump/Shaft/Motor (3)	\$150,000			1,000,000 gal.
	Variable Frequency Drives (1) (150 hp)	\$15,000			
	Generator (Gas)	\$160,000			
	SCADA	\$25,000			
	Monitoring Equipment	\$20,000			
	Odor Control	\$210,000			
	SubTotal Phase 1	\$580,000			
2	ORF Tank		\$400,000	\$400,000	\$580,000
	ORF Foundation		\$550,000	\$100,000	\$780,000
	ORF Pump Station Pumps				\$550,000
	ORF Pump Station Controls				\$750,000
	ORF Pump Station Piping		\$300,000	\$300,000	
	ORF Pump Station Valves				\$300,000
	ORF Pump Station Structure				
	SubTotal Phase 2		\$1,250,000	\$800,000	\$1,430,000
	Contingency (30%)	\$170,000	\$380,000	\$240,000	\$1,830,000
	TOTAL	\$750,000	\$1,630,000	\$1,040,000	\$2,380,000

OPINION OF TOTAL PROJECT COSTS

	PHASE 1 & 2			
	ABOVEGROUND TANK		BELOW GROUND TANK	
	CAISSONS	SPREAD	500,000	1,000,000
Construction Cost	2,380,000	1,790,000	2,610,000	3,130,000
Engineering Cost	500,000	360,000	540,000	620,000
TOTAL	2,880,000	2,150,000	3,150,000	3,750,000

opconstructioncostskearsargepstableS-8.xl



PROJECT <i>MTSA 537</i>		JOB NO.
SUBJECT <i>Kearsarge P.S. Cost Sharing</i>		SHEET <i>1/1</i>
DESIGNED <i>Jay</i>	DATE	CHECKED <i>C/T</i> DATE <i>6/7/06</i>

Summit's Cost Share

2014

$$\text{Summit Share} = \% \text{ 2014 Flow}$$

$$= \frac{\text{Peak Flow Share} + \text{Growth}}{\text{Total Flow}}$$

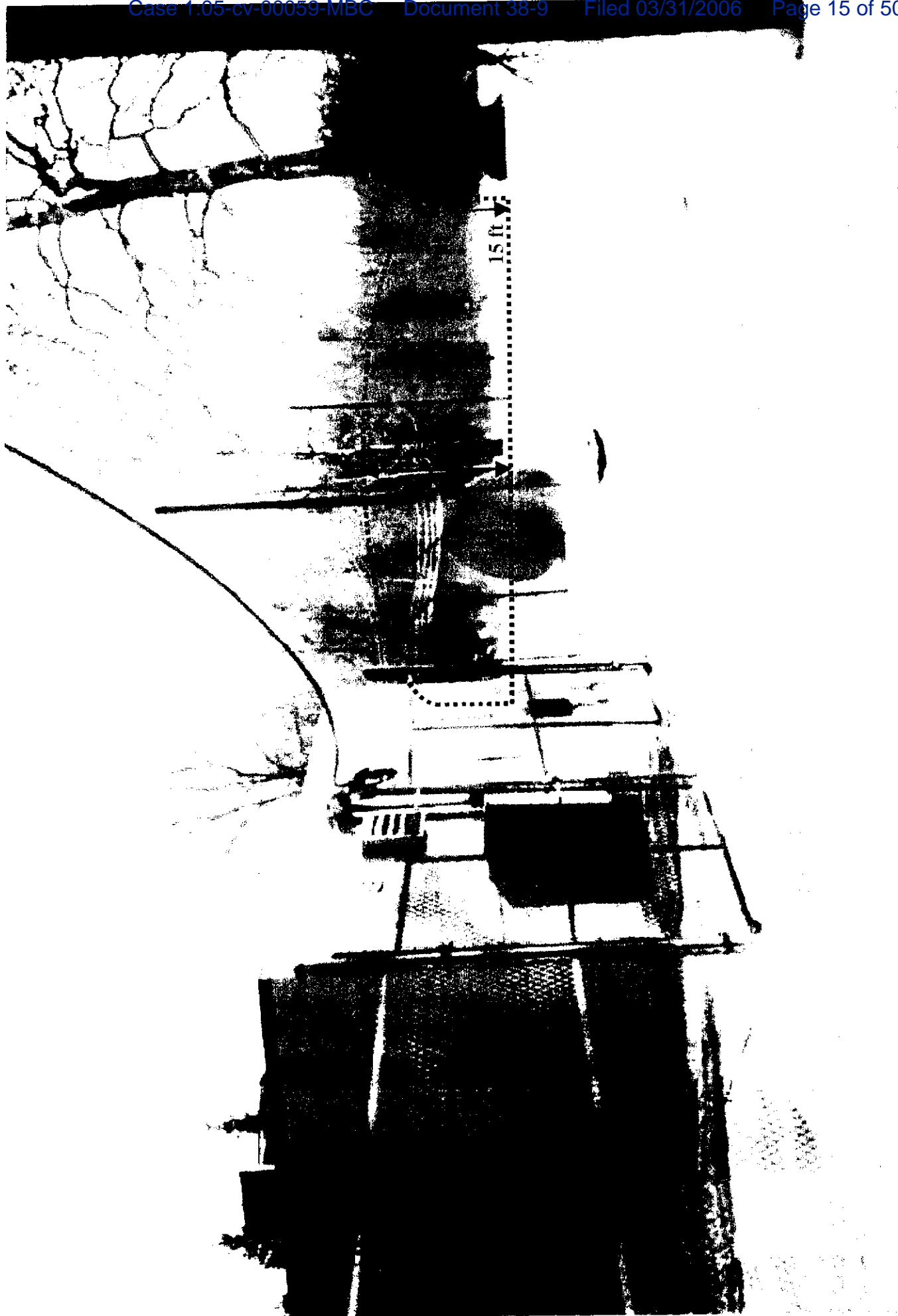
$$= \frac{.24(6400) + 320}{6840}$$

$$= 27.1\%$$

Summit's Cost (20yr bond issue at 5%):

$$\begin{aligned} @ \$2.15 \text{ million, Annual cost} &= \$172,000 \\ .271(172,000) &= \$46,612 \end{aligned}$$

$$\begin{aligned} @ \$2.88 \text{ million, Annual cost} &= \$230,000 \\ .271(230,000) &= \$62,330 \end{aligned}$$



MTSA - KEARSARGE PUMP STATION
OVERFLOW RETENTION FACILITY (ORF)

JUNE 2004

MSA-MT 2318

App. 365



SUMMIT TOWNSHIP SEWER AUTHORITY
8890 Old French Road • Erie, Pennsylvania 16509-5459
Phone (814) 868-4495 • Fax (814) 866-5821

June 17, 2004

Marlin K. Coon, Chairperson
Summit Township Supervisors
8900 Old French Road
Erie, PA 16509

Post-It® Fax Note 7671		Date 6/21/04	# of pages 1/1
To Jerry Allender	Co./Dept. 455-6596	From Bill Steff	Co.
Phone #		Phone #	
Fax #		Fax #	

Re: Official Sewage Facilities Plan Update
Resolution 2004-16
Millcreek Township - Kearsarge Pumping Station

Dear Supervisor Coon:

We acknowledge receipt of the June 15, 2004 response from Millcreek Township's Engineer, Gerald Allender, Consoer Townsend Envirodyne Engineers, Inc. to the Summit Township Sewer Authority comments on the Official Sewage Facilities Plan Update, a copy of which the Summit Supervisors also received.

This letter is to recommend the release of the above mentioned resolution approved at the Regular Business Meeting of Monday, June 7, 2004 of the Summit Township Board of Supervisors subject to Authority approval.

The Summit Township Sewer Authority concurs with the plan recommendation for a combination of increased pump capacity and peak flow retention.

Sincerely,

SUMMIT TOWNSHIP SEWER AUTHORITY

John H. Willow
Authority Chairman

CC.: George Riedesel, Manager Millcreek Township Sewer Authority
Jerry Allender, P.E., Project Manager, Consoer Townsend Envirodyne Engineers, Inc.
George Joseph, Solicitor, Quinn, Buseck, Leemhuis, Toohey & Kroto Inc.
Douglas C. Sceiford, P.E., Hill Engineering, Inc.
File

MSA-MT 2319

App. 366



Pennsylvania Department of Environmental Protection

230 Chestnut Street
Meadville, PA 16335-3481
JUN 22 2004

Northwest Regional Office

Gerald Allender, P.E.
CTE Engineers
155 West 8th Street
Erie, PA 16501

CTEE, INC. 814-332-6942
Fax: 814-332-6121
JUN 24 2004
RECEIVED

Re: Kearsarge Pump Station Special Study-Draft
Review

Dear Mr. Allender:

The Department has reviewed the above referenced draft document and would like to provide the following comments:

- 1) To maintain consistency with the Consent Order and Agreement, please provide the following modifications to the implementation schedule found on Page 3 of the Study:
 - a. Under the fourth bullet of the schedule, change "Design of Needed Improvement (includes permit application)" to "Design of Needed Improvement and submittal of Part II permit application and any other required permit applications or information."
 - b. Under the last bullet of the schedule, change "Abandon" to "Remove overflow and eliminate overflow events tributary to Kearsarge Pump Station."
- 2) Please provide a site-level planning map depicting the location of the proposed storage tank and any anticipated floodplain or wetland encroachments.
- 3) Figure I-a depicts the location of the proposed interceptor diversions. Without possessing knowledge of the locations of the existing sewer lines, this figure is difficult to interpret. Please modify, or provide an additional map that illustrates the direction of sewage flow before and after the proposed diversions.
- 4) The bottom of Page 17 references a study that is supposed to be included in Appendix II that identifies the houses that are subject to flooding. Neither the study nor Appendix II appears to be included.

MSA-MT 2320

Gerald Allender, P.E.

-2-

- 5) In addition to the projected costs that are outlined in Table S-8/XI-1, related to the pump station upgrades and storage tank construction, the projected costs associated with the installation of the back flow preventers and construction of the interceptor relief lines should be included.
- 6) The storage pumping capacity referenced on Page 2 of the Preface is 3140 gpm. Should this number be 2500 gpm as referenced elsewhere in the Study?
- 7) Since the selected alternative will cause rates to increase in Summit Township, please provide documentation indicating that Summit Township has had the opportunity to review the Special Study and provide comments.
- 8) Please be sure that all items under 25 Pa Code Section 71.31 are addressed in the final submittal as required by the Consent Order and Agreement.
- 9) When submitting the Part II permit application, please include a narrative that describes the method by which the project will be implemented without causing additional over flows (how will the overflow be removed without spilling sewage).

If you have any questions regarding the content of this letter, please feel free to contact me.

Sincerely,



Eric C Kicher
Sewage Planning Specialist
Water Management

cc: Millcreek Township Sewer Authority
Millcreek Township
Tony Oprendeck
Kristen Hoesch

ECK:lsf

MSA-MT 2321

App. 368

STUDY PRESENTATIONS

Presentations were made to the following groups on the indicated dates

May 20, 2004 ---- Millcreek Township Sewer Authority
May 27, 2004 ---- Summit Township Sewer Authority
June 7, 2004 ---- Summit Township Sewer Authority
June 10, 2004 ---- Millcreek Township Supervisors
June 17, 2004 ---- Millcreek Township Sewer Authority
The presentation package is attached.
Questions were addressed from the
Floor and noted in the Comments and
Responses section.

APPENDIX A-2

COMMENTS & RESPONSES

I. Millcreek Township Supervisors

- a. Environmental Impact of Proposed Tank?
An Appendix A-3 has been completed addressing concerns on the impact of the tank.
- b. Cost of Alternatives to Tank?
New Appendix A-4 addresses this question

II. Summit Township

- a. Cost of Sewer Construction and Summit's Share?
New Appendix A-4 and added paragraph to the Capital Financing Plan section of Chapter XIII.
- b. Supervisors Meeting Q & A
See the attached memorandum on the meeting.

III. Millcreek Township Sewer Authority

- a. Selection of Tank/Station Size and Storm Frequency?
The entire process of first defining a cause and effect relationship for the overflows at the station, then selecting the largest most probable storm to impact the overflow volumes, and then define that impact was explained. The Authority then approved the study recommendations.
- b. Alternative Selection Process?
The pros and cons of pumping versus storage were explained. The Authority accepted the study recommendations.
- c. Tank Impact?
An early version of the tank rendering presented to the Authority at the 6/17/04 meeting. The tank impact considerations are now found in Appendix A-3.
- d. Alternatives to Selected Alternative Costs?
Costs are found in Appendix A-4.

IV. Summit Township Sewer Authority (see 6/7/04 letter)

- a. Alternatives to Selected Alternative Costs?
Costs are found in Appendix A-4.
- b. Costs for Future Expansion to Incorporate Ultimate Flows?
It was stressed that the needed sizing for such an expansion could vary dramatically. Costs for the now anticipated need in 2014 are found in Appendix A-4.
- c. Reference Summit's Rt. 99 Subsystem and Evaluate Available Sewer Capacity?
Chapter VIII "Existing Facilities", Chapter X "Alternates Available", and Chapter XI "Evaluation of Alternatives" have all been revised to discuss the impact of flows from Rt. 99. Appendix A-4 discusses the conceptual design and cost of a relief sewer to accommodate ultimate flows (post 2014) and Chapter XIII "Capital Financing Plan" has been revised to note its potential future need.
- d. Revise Agreement to Interpret Term Peak Flow Differently?
This is not a plan responsibility but a letter addressing the comment is found in this appendix.
- e. Reduce Summit's Cost If Projected Annual EDU's Are Not Granted?
The plan uses annual only to develop the planning interval total. The plan does call for reassessing cost sharing in the year 2014. No change is made in the plan.
- f. Pump Station Flow Be Monitored and Reported in 15-Minute Increments?
MTSA agrees to do so electronically (see the attached letter). The proposed construction includes a SCADA system which makes this possible.

V. Erie County Department of Planning

- a. No Comments

VI. PA Department of Environmental Protection (see 6/22/04 letter)

- a. Implementation Schedule Wording Changes?
Changes made on page 3.
- b. Site Level Planning Map?
Figure XI-a

- c. Better Description of Areas of Sewer Rehab and Proposed Changes?
Figure SI-a / VIII-d has been modified and Figures X-e, X-f, and X-g added to describe proposed changes.
- d. Study of Back Water Valve Needs Not Included?
Appendix volume included.
- e. Include Costs of Back Water Valves and Sewer Rehab?
Included in new Appendix A-4.
- f. Preface Storage Flow Wrong?
Changed.
- g. Summit Responses Concerning Study Recommendations?
Included in new Appendix A-1 and A-2.
- h. Address all items under 25 PA Code Section 71.31?
Yes
- i. Include Narrative on Removing Overflow without Spillage in Permit Application?
A suggested paragraph is included in new Appendix A-5.

VII. Erie County Health Department
No response.



155 West 8th Street

June 1, 2004

Erie, Pennsylvania 16501

Mr. William Crawford
PA Department of Environmental Protection
230 Chestnut Street
Meadville, PA 16335
Phone: (814) 453 4394

Dear Mr. Crawford:

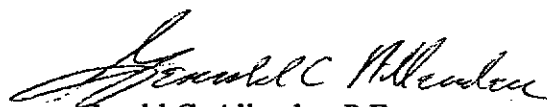
Fax: (814) 455 6596

Enclosed please find a copy of the Public Review Draft of the Act 537 Special Study for the Kearsarge pump station and its tributary sewer system upgrade and expansion. Also included is a separate copy of the synopsis and a preface that we were requested to complete to allow for persons to review the contents of the report without the interruption of tables and figures.

These documents are provided to you at this time in the event you wish to comment prior to the completion of the public review process. We have also enclosed a copy of the Public Notice.

Very truly yours,

CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.


Gerald C. Allender, P.E.
Project Manager

GCA:lb

Enclosure

cc: Erie County Health Department, Attn: Peter Link, w/enc.

MSA-MT 2326

APPENDIX A-3

**TANK ENVIRONMENTAL
CONSIDERATIONS**

ELEVATED TANK

ENVIRONMENTAL ASSESSMENT

NEED: The need for a project has been determined by the Consent Agreement as a need to abate overflows from the station. Overflows can be abated by decreasing station influent flow, increasing station forward discharge flow, or providing overflow retention and beading the waste back to the station following the storm. The justification to select the mix of storage plus forward pumping has been described elsewhere. It consists of the following reasoning:

Reducing influent flows: The PA DEP has refused to accept reduction of flows through I&I abatement as the means of abating overflows based on past failures. Instead, this study suggests continued efforts to reduce such flows and a minimal (ten-year) design period to allow the impact of these efforts to be determined before upsizing further. The study recommends designs which will allow for an ease of expansion in the future in the event abatement is unsuccessful.

The Authorities will continue their efforts to abate I&I and facilities will not be oversized initially.

Maximizing forward pumping: Existing agreements prevent the forwarding of substantial flows forward into the City of Erie. Even were the agreements to allow unlimited gallonage, it makes little resource conservation sense to discharge what amounts to twice the present maximum amount to the wastewater treatment plant. However, by not allowing any increase in flows, the required storage will be maximized.

Maximizing Storage: The larger the storage facility the greater the impact on the land disturbed and the neighborhood environment. The more frequent its use, the greater the maintenance requirements.

ENVIRONMENTAL:

Floodplain: The floodplain mapping showed several locations where the storage facilities could be located. However, visual observations of the area produced evidence of higher floodplains than mapped. It appeared that past construction in the seventies

may have encroached on the floodplain and debris in the trees indicated higher waters than expected.

The Authority contracted to have a floodplain study completed. That study is found in Appendix B-1 and an excerpt of the map in the area of construction is attached. It revealed that the only area available for construction on adjacent property was adjacent to the pump station but that significant amounts of land are available. Construction can take place in the 500-year plain but not the 100. The 100-year floodplain first encroaches on township property 280 ft. east of the existing pump station.

Wetlands: Wetlands were also suspected and a wetlands delineation study was also completed. This study found wetland vegetation interspersed throughout the 100-year floodplain area but none in the area west of the utility right-of-way in the areas mapped out of the floodplain and also those in the 500-year floodplain. This clears the land east of the station to the utility easement for construction (280 ft.). The wetland delineation is shown on the map in Appendix B-1 but not on the attached excerpt.

Historic Sites & Endangered Species: The State Historic & Museum Commission and the PA Natural Diversity Inventory have found the area to be clear of any concerns. Their comments and copies of the requests for information are found in Appendix A-2.

Existing Vegetation: Several large trees (sycamores) are found in the area. By moving the tank to the east as far as possible, most trees (including the largest, a 5-1/2 foot diameter sycamore) can be protected by keeping the construction out of the leaf canopy. However, there is insufficient township owned land to allow this tank to be moved out from under a 3 foot diameter sycamore's leaf canopy. This tree will be lost. All other trees impacted are small and may be considered of the scrub variety (see attached photographic print).

Esthetics: The impact of such a tank on the community must be considered. The unit's proposed construction concept was selected to minimize its impact. Covered and provided with cleaning equipment to minimize the potential of odors, sized to minimize its footprint and image, constructed to allow its expansion rather than require additional units if more capacity is required, designed to minimize retention time following a storm, and dimensioned to minimize its visual impact (sidewall height 15 foot plus domed roof equals 25 ft.).

The tank has also been proposed to be located to minimize its visual impact on the local residency. It is proposed to place it to the farthest east location available without trespassing into the 100-year floodplain. This places it within the tree line and behind a 10 foot embankment all selected to shield it from the existing residents. The attached computer rendering of the proposed tank gives a projected view of the tank. A second site was investigated 600 feet from the station near a 20 foot embankment and was eliminated by floodplain and wetland considerations. This site would have caused other concerns with maintenance.

Color selection can also make the unit more esthetically pleasing. The color used in the attached picture was selected to make the tank observable for demonstration purposes. Even though the color selections available for the recommended tank type are limited much less obvious colors are available. The final color selection will be made at the time of design.

The attached picture also shows the large 3 foot diameter sycamore in front of the tank. This tree will not remain but is left in the picture to allow the reader to locate the front of the tank in the field.

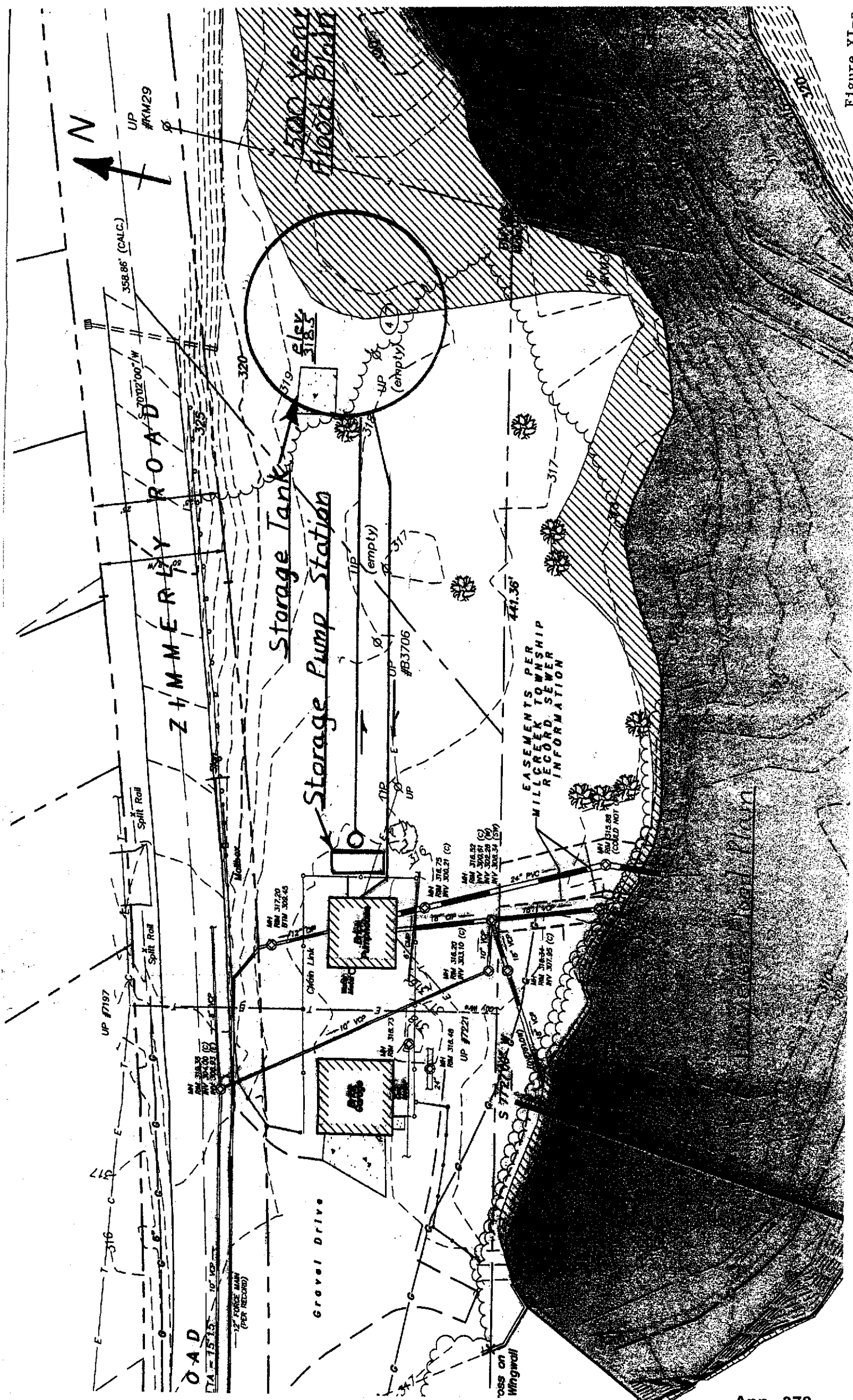


Figure XI-a

MSA-MT 2331



JUNE 2004 – MTSA – KEARSARGE PUMP STATION
OVERFLOW RETENTION FACILITY (ORF)

MSA-MT 2332

APPENDIX A-4

**ALTERNATE SELECTION
&
COST COMPARISONS**

MSA-MT 2333

App. 380

ALTERNATE SELECTION & COST COMPARISONS

Alternates were selected for evaluation based upon environmental as well as practical reasons.

Design flows were first determined. The flow rate of concern is peak flow rates anticipated at the station which need to be transferred to downstream sites for conveyance and treatment at the Erie Wastewater Treatment Plant. The rate chosen was based on station observations during overflow events and flow impacts of selected storm events judged by the frequency of their occurrence during environmental conditions which would foster overflows. The 2004 flow rate selected equaled 6,400 gpm and represents a 1-year frequency storm impact occurring during the wet season between December 1 and April 30, an incident which has not occurred in the past ten years but certainly has the potential.

PUMP STATION

2014

The design period selected was ten years to allow the design storm selection to be reevaluated as well as to review the impact on station flows of existing I&I abatement efforts. Peak flow expected due to growth were added to the 2004 design flow rates to equal 6,840 gpm.

The design concept alternates were envisioned to vary between pumping all flows forward to storing all flow rates above existing pump capacity. The present average flow from Kearsarge station is approximately 1,800 gpm. At a peak rate of 6,400 gpm, the peak to average ratio equals 3.6. Thus, if all flows were transferred forward, an hydraulic capacity of 360% of the average would be required. Also, the existing forward flow at peak rates would be increased from 3,600 gpm to 6,840 by 2014, an increase in the flow rate of approximately 4.5 MGD. Since there is downstream capacity agreement questions presently, it was decided to limit the downstream conveyance quantities to values within the existing station structural capabilities which was determined to equal 5,500 gpm and eliminate the alternates of both replacing the pump station and/or extensively modifying the station structure to enable larger through put.

There is also a concern about depending on storage due to its impact on esthetics and the environment. Thus care was taken not to maximize its use either.

All alternates assuming a through put range of 3,600 gpm (existing) to 5,500 gpm (maximum structurally supportable) require that storage be provided to retain peak flows during extreme events. Just the size of the facilities varies. Because of the basement

elevations of nearby residences and construction problems with facilities located lower than the station floor (rock and water), any storage would have to be located higher than the maximum surcharge permissible and requires supplemental pumping.

Also, all alternates require improvements of the pump station because of its age. The only variation in the pump station improvements is in the size of the facilities and in the number of pumps.

The storage tank location and construction is the subject of a separate environmental assessment discussion. The Authority has chosen for conceptual purposes an aboveground metal unit because of its diversity for future expansion, its construction ease, and costs.

The required construction for each of three alternates follow.

1. 3,600 gpm (existing flow)

One new pump and drive, auto transfer switch, new electrical panels, generator, odor control, SCADA, 3,140 gpm storage pumping station, 800,000 gallon overflow retention tank.

2. 4,500 gpm (existing plus ten-year growth)

Three new pumps, one new drive, auto transfer switch, new electrical panels, generator, odor control, SCADA, 2,340 gpm storage pumping station, 500,000 gallon overflow retention facility.

3. 5,500 gpm (station structural capacity)

Three new pumps, one new drive, auto transfer switch, new electrical panel, generator, odor control, SCADA, replace 1,700 ft. of force main, 1,240 gpm storage pumping station, 200,000 gallon overflow retention facility.

The estimated costs for each of the three alternates are found in the following table assuming the use of caissons.

Alternate Construction Cost	Forward Pumping Capacity		
	3,600 gpm (Alternate A)	4,500 gpm (Alternate B)	5,500 gpm (Alternate C)
Pump Station	\$480,000	\$580,000	*\$630,000
Storage **	\$1,560,000	\$1,250,000	\$970,000
Contingency	\$610,000	\$550,000	\$480,000
Engineering	\$530,000	\$500,000	\$420,000
Total	\$3,400,000	\$2,880,000	\$2,500,000

* Includes force main replacement (1,500 ft.)

** Includes storage pumping

Environmentally, operation, and future flexibility, Alternate B, expanding pump station forward capacity by 900 to 1,000 gpm and providing storage of 500,000 gallon (optimizing both pumping and storage) is the best.

Cost wise (assuming the need for caissons) the alternate maximizing forward pumping (5,500 gpm) is the best alternate. Its cost estimate is \$380,000 less than Alternate B. However, if a spread foundation is permissible, then the difference becomes much less, \$150,000.

Alternate B allows for either increasing storage or pumping in the future and provides for a base which will allow up to an additional 500,000 gallons in storage (with an additional 15 ft. of height) and allows for increasing pumping 1,000 gpm if questions regarding the Millcreek City Agreement are resolved.

Ultimate

Ultimate flows will produce an additional 933 gpm of peak influent flow or up to 56,000 gallons per hour. This additional flow may be handled by increased forward pumping capacity or increased storage. The projected average flow is significantly less equaling 373 gpm or 22,400 gph.

If pumping is increased, then existing agreements must be modified or existing flows reduced. Flows will need to be increased by 1,000 gpm. By establishing 2014 design forward flows to 4,500 gpm, the station can be expanded to 5,500 gpm without any major structural changes except for improvements to the force main.

In lieu of increased pumping, storage can be expanded. At the design storm of September 29 and pumping at 4,560 gpm, the storm overflow duration would have equaled eleven hours. The ultimate flow incremental increase would need to be handled during that period.

Since the time frame is eleven hours or half a day and if the time frame is assumed to be 8:00 a.m. to 8:00 p.m., the flow is estimated to average 1.5 x the design average increment of 373 gpm or 560 gpm. This rate over eleven hours requires an additional 370,000 gallons of storage if none is to be pumped forward.

The alternatives to provide for ultimate flow then include expanding the storage by 400,000 gallons (assume a one million gallon unit) or expand forward pumping capacity by modifying the force main. The 2014 design is recommended to allow for either expansion to occur by providing structural support for a higher tank and by providing upsized generator, etc. to allow for larger pumps increasing the size of storage or increasing the size of pumps. The estimated costs in 2004 dollars for the ultimate flow alternates are found in the following table.

Cost of Ultimate Flow Alternates
Kearsarge Pump Station

	Increase <u>Forward Pumping</u>	Overflow <u>Retention</u>
Tank	0	\$191,000
Storage Pumping	0	\$100,000
Forward Pumping	\$100,000	0
Force Main	\$150,000	0
Contingency	\$75,000	\$89,000
Engineering	<u>\$65,000</u>	<u>\$75,000</u>
Total	\$380,000	\$455,000

Forward pumping again appears the least expensive. At that time it will be more justifiable since it does reflect sewage flows not storm flows.

Thus if agreements allow and if assessments of I&I abatement efforts and storm selections confirm the design flow need, either or both alternatives will be available.

SEWERS

The sewer needs reflect both the sewer capacity corrections and the basement flooding protection. Both activities are seen as Millcreek Township Sewer Authority responsibilities. The three area impacted are shown as areas A, B, C, and D on Figure I-a / VIII-c.

Area A is the neighborhood impacted should the pump station wet well surcharge due to a catastrophic failure. While individual check valves can prevent backup of sewage from the mains, they also prevent release of sewage from the homes. If they are placed in the yard and footer drains are connected, then the footer drains will back into the house. If they are located inside the house, no reservoir is provided to allow use of the households' utilities during the surcharge events. In developing costs it is assumed that the unit will be placed outside the house and that the homeowner will be responsible to disconnect any foundation drains if they exist. The unit will be placed in a standard 4 ft. manhole to allow for servicing. It is assumed that the unit will be no more than 6 ft. deep. Cost is estimated at \$1,500 for the manhole and \$500 to install the check valve or \$2,000 per home. Thirty-six homes are projected to have a need. Homeowners should be advised of the potential need to restrict water use in such situations.

Area B is the point of the relief sewer construction. Dixon and 51st Street will be disconnected from the 10-inch sewer and reconnected to the 15-inch relief. The 10-inch

will still serve Zimmerly and the area west of I-79. A contract has been let for this construction but work has been halted to allow the water table to recede. The cost of this effort is the bid price or \$82,356.

Area C is the area where flows on Rt. 19 (Peach Street) moving north to the Beaver Run interceptor will be diverted to the 24-inch running across the mall property. The initial effort will be to divert all flows south of Walnut Creek to the 24-inch by a gravity line. This sewer serves Millcreek users tributary to Rt. 19, Interchange Road, and Rt. 99 and Summit Township tributary to Rt. 99. This will require two interconnections estimated at \$3,500 each, a single manhole (\$1,700) and 200 ft. of 15-inch sewer estimated at \$100 per foot. Traffic control and restoration will be at a premium. The old sewer north of the interconnection on Rt. 19 and also north of the siphon under Walnut Creek will need to be plugged.

Ultimately Kuntz Road flows (entering the Rt. 19 sewer north of Walnut Creek) may need to be diverted to the same 24-inch also. This will require a road crossing (75 ft. at \$150/ft.), 100 ft. of gravity (\$10,000), a manhole (\$1,700), a pump station (\$110,000), 500 ft. of force main (\$25,000), a stream crossing (50 ft. at \$150/ft.), and two sewer interconnections (\$7,000). This construction is not anticipated to be needed (if at all) until 2014. However, if the initial impact of the Rt. 19 diversion is less than anticipated, the Kuntz Road diversion should proceed earlier.

Sewers in Area D have sufficient capacity to last well past the 2014 period. However, if Summit's ultimate flow projections (1.3 MGD) are met for Rt. 99, then a sewer relief or replacement project will be needed. The Rt. 99 flows should be diverted to their own sewer on the north side of Rt. 99. The cost should be Summit's. It is estimated at a total cost of \$135,000 with a planned implementation well past 2014.

The cost estimates for sewer construction are totaled in the following table.

Sewer Projects (2004 dollars)

Year	Work Effort	Construction	Contingency	Engineering	Total
2004	Backwater valves	\$72,000	\$21,000	\$7,000	\$100,000
	Zimmerly Relief	\$82,400	N/A	N/A	\$82,400
	Rt. 19 Diversion	\$28,700	\$8,300	\$5,000	\$42,000
2014	Kuntz Road Diversion	\$172,400	\$51,600	\$22,000	\$246,000
	Interchange Rd. Relief	\$135,000	\$40,000	\$18,000	\$193,000

MSA-MT 2338

I&I ABATEMENT

No estimates are available for this effort yet but a comprehensive effort in Millcreek west and east of the station has begun and uncovered a significant number of violations. Over 400 homes east of the station have been noted to have some violations. Two trailer parks west of I-79 have been found to have holes placed in the individual trailer sewer connections to allow surface water to drain to the sanitary sewers. If 2 gpm contribution from each unit could be abated, the entire ultimate flow increment needs could be eliminated in 2014. Thus this effort bears watching.

MSA-MT 2339

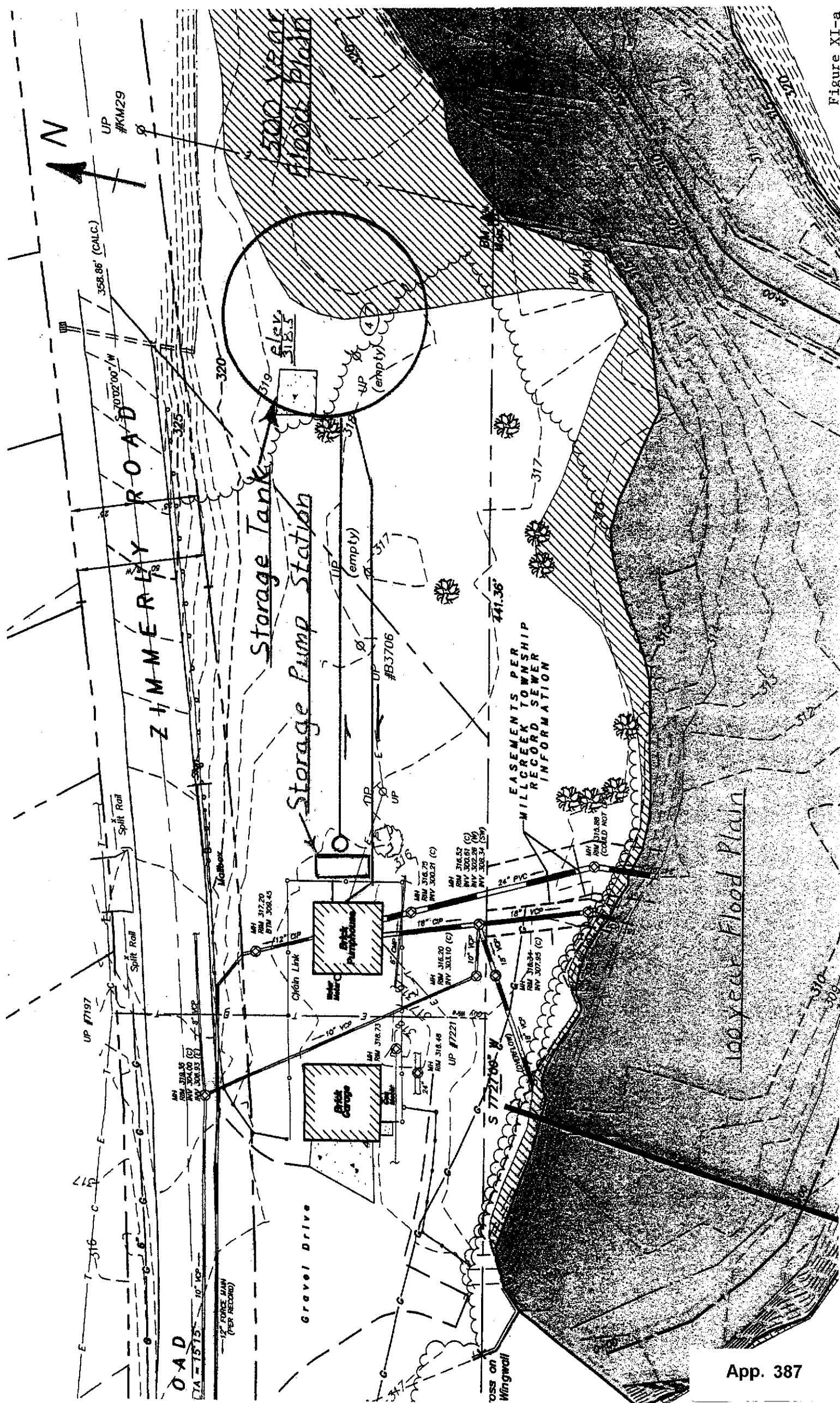
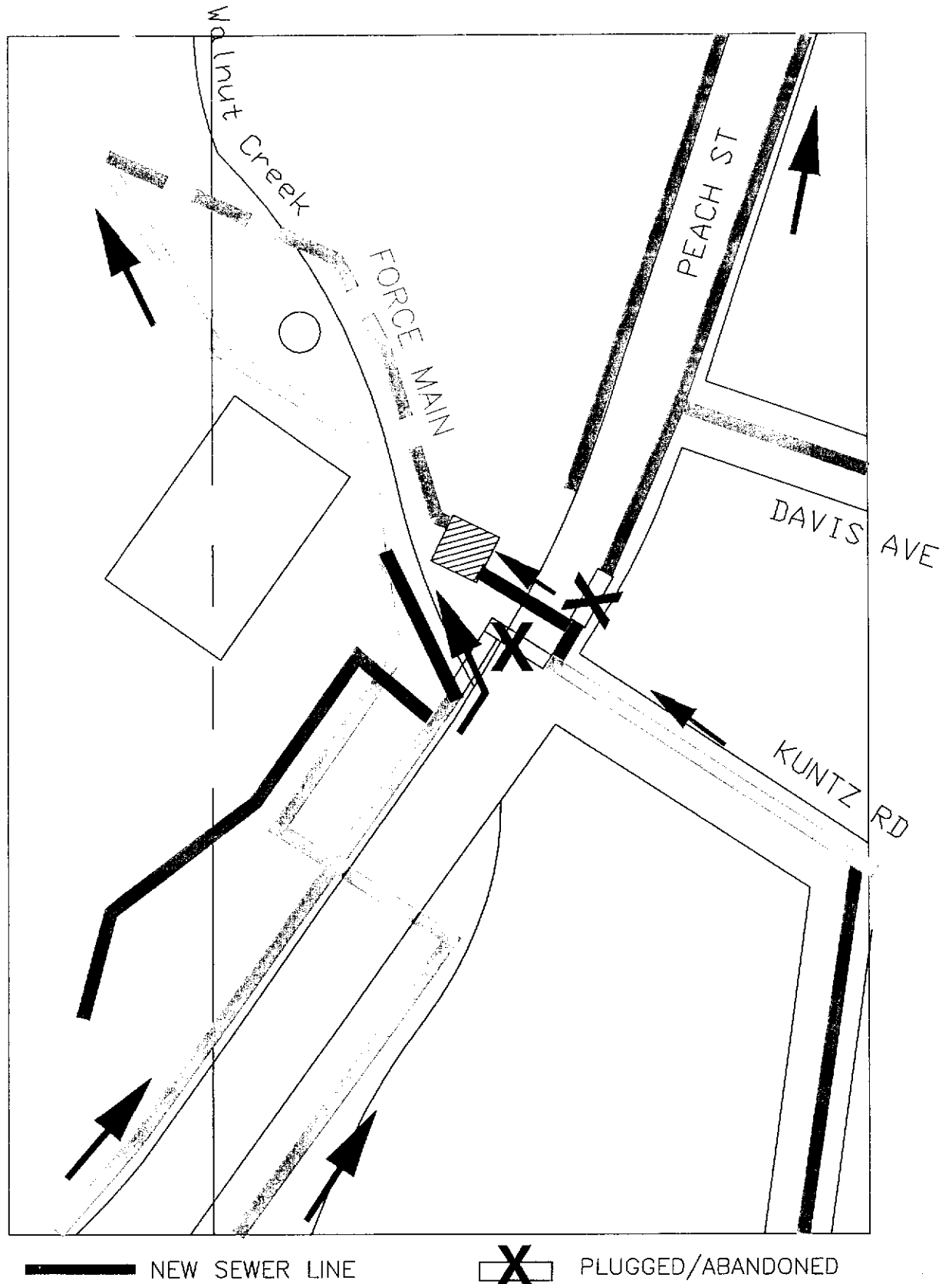


Figure XI-a

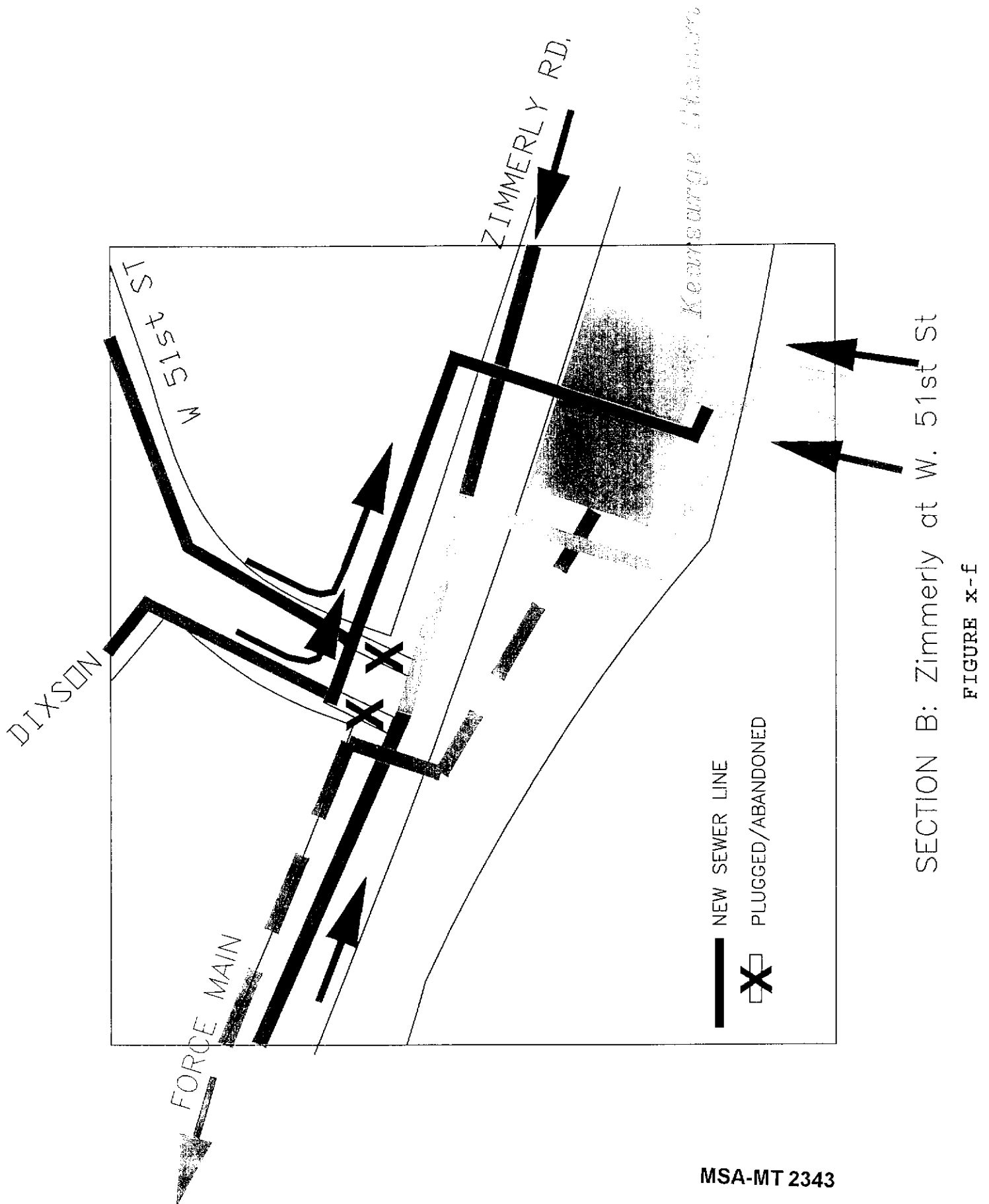




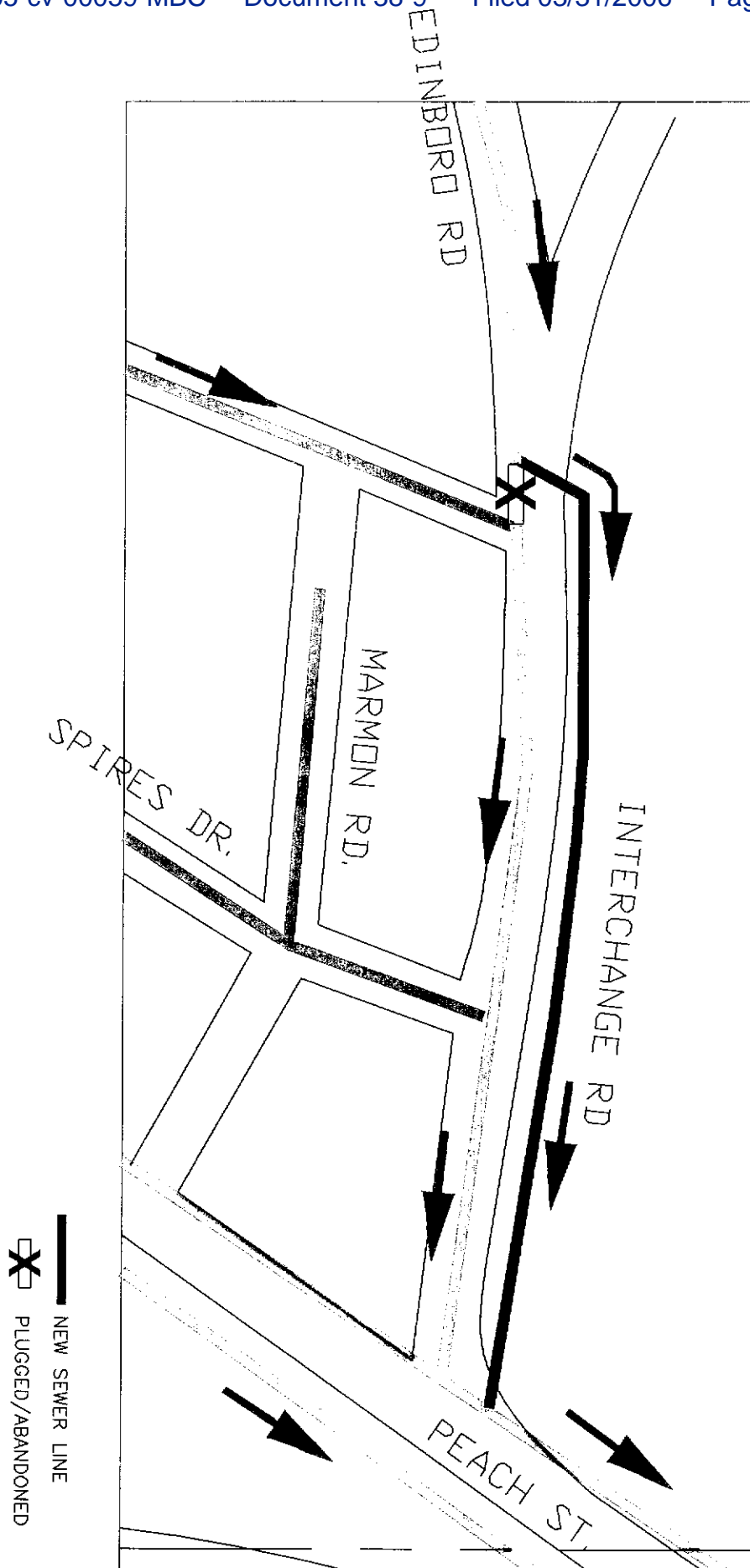
SECTION C: Peach St at Kuntz Rd

FIGURE x-e

MSA-MT 2342



MSA-MT 2343



SECTION D: Interchange Rd at Peach St

FIGURE x-g

APPENDIX A-5

PUMP STATION / DESIGN CONCEPT STORAGE TANK

PUMP STATION
DESIGN CONCEPT

The proposed new facilities are shown on the attached floodplain plan segment in relationship to the 100 and 500-year floodplain. The facilities include the storage tank (overflow retention facility) and the storage pump station which will deliver flows to the storage tank. The storage tank is entirely aboveground with the foundation floor at the 500-year floodplain elevation (318.5). All facilities are outside the 100-year flood elevation (see Appendix B-1 for the floodplain study). The tank has been partially located in the 500-year floodplain as is permissible in order to allow it to be totally shielded by trees and an embankment from nearby residences.

A wetland study has been completed and has found no wetland vegetation west of the power line shown at the upper portion of the plan segment attached. The wetlands delineation study results are also found on the floodplain plan found in Appendix B-1. Thus no wetlands are impacted by the proposed facilities.

The proposed design concepts are as follows:

- Normal flows will enter the station and be pumped forward.
- As pump station forward capacities are exceeded due to peak flow events and the wet well begins to surcharge, excess flows will flow to the storage pump station via a 24-inch pipe.
- Excess flows will be pumped from the storage pump station to the storage tank.
- As flows recede below the pump station's forward capacity, an automatic valve on the tank drain will open activated by the falling wet well level allowing the tank to drain back to the wet well at preselected rates.
- When the storage pump station activates it will record on the SCADA system so that maintenance personnel will know to clean the tank using the water cannons provided in the tank.

Notes:

- A schedule will be provided with the design which will specify the contractor have at least two forward pumps operable at all times and that the station will not be taken off line. Wet well construction will be above the normal operating level and thus should be able to proceed without bypassing flows.
- Three pumps will be called for in both the main pump station and the storage pump station sized so that any two operating together will pump the design flows (proposed pump descriptions are attached).
- The generator will be sized to operate all six pumps in the event extreme unanticipated storm runoffs were to be encountered. Activation of the spare pumps in this event should be manual.

- The storage pump station influent sewer will be provided with a reverse grade to cause the pump station wet well level to be above the outlet orifice crown to retain floatables in the station wet well. That level should be set below the main pump station's inlet sewers (see attached pump station wet well level schematic).
- The storage pump station will be provided with a gravity drain to the wet well protected by a flap gate to prevent back flow and gases to enter the station. A hydrant will be provided for cleanup.
- A staff gage will be placed in the station designating levels above the first landing to indicate elevations impacting basements and influent sewers (see attached wet well level schematic).
- Alarms will be provided to alert officials of levels above those designated for proper operation.
- Following the pump station upgrade construction, the overflow is to be removed. The envisioned concept is to excavate to the existing valve (a live tap on the discharge line was reportedly used), remove the pipe from the effluent side of the valve, install a blind flange on the discharge side of the valve, remove the operating nut and the valve operating stem, and cover the unit. There is no concern over sewage spillage since the valve will be shut during and after the construction. The valve, being a live tapping unit, should be able to withstand the thrust (50 pound maximum). If one were to attempt to remove the valve rather than just disable it, the line would have to be bypassed and drained. Both would be difficult and perhaps impossible without "spilling sewage."

KEARSARGE PUMP STATION:
WET WELL & SEWER PIPE/MANHOLE VOLUME

	Elev. (ft)	Wet Well Volume (gal)	Sewer Pipe Add'l Vol (gal)	Total Volume (gal)	% of Total Vol
<i>Wet Well Floor</i>	289.5	0		0	0
<i>Pump Suction CL</i>	290.5	317.9		317.9	0.2%
<i>Top of Fillet</i>	295.0	3979.0		3979.0	2.6%
	295.5	4837.8		4837.8	3.1%
<i>Bottom of Barminutor</i>	298.5	9593.5		9593.5	6.2%
<i>Top of Beam</i>	299.0	10102.8		10102.8	6.5%
<i>Invert of Intake Pipes</i>	300.0	11404.4	0	11404.4	7.4%
<i>1st Landing</i>	302.5	14397.6	9820	24217.5	15.6%
<i>1st Ldg + 1 step</i>	303.125	15449.8	13671	29121.0	18.8%
<i>1st Ldg + 2 steps</i>	303.75	16523.2	17363	33886.4	21.9%
<i>1st Ldg + 3 steps</i>	304.375	17596.6	20816	38412.5	24.8%
<i>1st Ldg + 4 steps</i>	305.0	18670.1	24559	43228.9	27.9%
<i>2nd Landing</i>	305.625	19743.5	28328	48071.5	31.1%
<i>2nd Ldg + 1 step</i>	306.25	20817.0	31581	52398.1	33.9%
<i>Open Bypass</i>	306.5	21246.4	32882	54128.7	35.0%
<i>2nd Ldg + 2 steps</i>	307.125	22319.8	35851	58170.4	37.6%
<i>2nd Ldg + 3 steps</i>	307.5	22963.9	37632	60595.5	39.2%
<i>2nd Ldg + 4 steps</i>	308.125	24037.3	42444	66481.8	43.0%
<i>2nd Ldg + 5 steps</i>	308.75	25110.8	47257	72368.1	46.8%
<i>3rd Landing</i>	309.375	26184.2	52070	78254.3	50.6%
<i>3rd Ldg + 1 step</i>	310.0	27257.7	56883	84140.6	54.4% <i>1st Basement</i>
<i>3rd Ldg + 2 steps</i>	310.625	28331.1	61696	90026.9	58.2%
<i>3rd Ldg + 3 steps</i>	311.25	29404.5	66509	95913.2	62.0%
<i>3rd Ldg + 4 steps</i>	311.875	30478.0	71321	101799.5	65.8%
<i>3rd Ldg + 5 steps</i>	312.5	31551.4	76134	107685.7	69.6%
<i>3rd Ldg + 6 steps</i>	313.125	32624.9	80947	113572.0	73.4%
<i>3rd Ldg + 7 steps</i>	313.75	33698.3	85760	119458.3	77.2%
	314.1	34299.5	88455	122754.6	79.3% <i>Surcharge to MH Rim</i>
<i>3rd Ldg + 8 steps</i>	314.375	34771.8	90573	125344.6	81.0%
<i>3rd Ldg + 9 steps</i>	315.0	35845.2	95386	131230.9	84.8%
<i>3rd Ldg + 10 steps</i>	315.625	36918.7	100198	137117.2	88.6%
<i>3rd Ldg + 11 steps</i>	316.25	37992.1	105011	143003.4	92.4%
<i>3rd Ldg + 12 steps</i>	316.875	39065.6	109824	148889.7	96.2%
<i>Ground Level at Pump Station</i>	317.5	40139.0	114637	154776.0	100.0%

NOTE: Assumes that barminutor area is solid block (no volume)
Neglects the volume of the stairs and handrails.
Manholes are assumed to be 4' diameter cylinders.

FIGURE VIII-I

Allender, Gerald

From: Chad W. Fenstermaker [chadkai@earthlink.net]
Sent: Tuesday, June 01, 2004 7:05 PM
To: Allender, Gerald
Cc: Ellrich, Jeff; Mullins, Greg
Subject: Fw: Millcreek, PA

Dear Gerry,

This should summarize all the sizes and shapes.

500,000 Gallon X 15' High with future expansion to 1,000,000 Gallon at 30' high see below (from May 18, 2004).

1,000,000 Gallon X 15' High including all appurtenances listed below: Model 11215 (1,000,005 Gallons)-
\$739,000.00 @ \$0.74/Gal.

1,000,000 Gallon X 30' High including all appurtenances listed below: Model 8128 (1,099,000 Gallons)-
\$618,000.00 @ \$0.56/Gal.

250,000 Gallon X 15' High email from today. Model 5615 (251,000 Gallons)-\$328,000.00 @ \$1.31/Gal.

The economy is in the taller tanks as you can see. There will be, I'm sure, a tidy savings to be realized if the 1,000,000 gallon versions were installed in the initial phase and the need is there. We would be very interested in visiting the site. Jeff Ellrich will be in the Erie area next week and I will most likely join in also. Please let me know if it would be appropriate for us to meet at the site with you and possibly Susan somewhere around the 9th or 10th of June.

Again, contact me anytime, hopefully we are caught up at this point. Best Regards, Chad

----- Original Message -----

From: Chad W. Fenstermaker
To: gerald.allender@cte-eng.com
Cc: Mullins, Greg ; JEFFELLRICH@aol.com
Sent: Wednesday, May 19, 2004 1:42 PM
Subject: Fw: Millcreek, PA

----- Original Message -----

From: Chad Fenstermaker
Sent: Tuesday, May 18, 2004 1:34 PM
Subject: Millcreek, PA

5-18-04

To: Gerald Allender

Re: Millcreek, PA - Flow EQ Tank
Subj: Budget Pricing

Aquastore Tank Model 8115-SSTT
81.12' Dia. x 14.68' Sidewall ht. x 10.47' roof rise ht.

6/2/2004

MSA-MT 2349

528,000 gallon capacity including 1' freeboard
AISC structural design, ASCE-7 wind design, AWWA D103 seismic design

Estimate Includes:

12" DIP inlet-outlet piping (concrete encased) stubbed out 3' with plain end
reinforced concrete ringwall foundation and floor per AWWA D103 type 10.4.1.6
glass-coated-bolted-steel embedded starter ring and sidewall
24" sidewall manway
aluminum free-span dome roof with dormer, three (3) Skylights & mandoor and 20" gravity vent
aluminum spiral staircase with top platform and handrails
4' wide bridge walkway (aluminum) w/ handrails extending 40' to center of tank w/support columns
two water cannons mounted at end of walkway with 3" feed piping
prevailing wage installation labor

Budget Estimate:

\$365,000 piping, foundation, tank with dome
\$ 95,000 spiral staircase, bridge walkway, water cannons
\$460,000 total estimate

ADD: Design and install foundation and starter sheet to accomodate future expansion to 28.4' and 1,094,600 gals.—\$5,000.00.

Please do not hesitate to call if you have any questions or comments. Regards, Chad

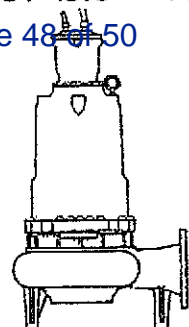
Copy to:

Mid Atlantic Storage Systems, Inc.
Branch Office:
1400 River Trail
Kent, OH 44240
P 330/346-0709
F 330/346-0710
www.midatlanticstorage.com

6/2/2004

MSA-MT 2350

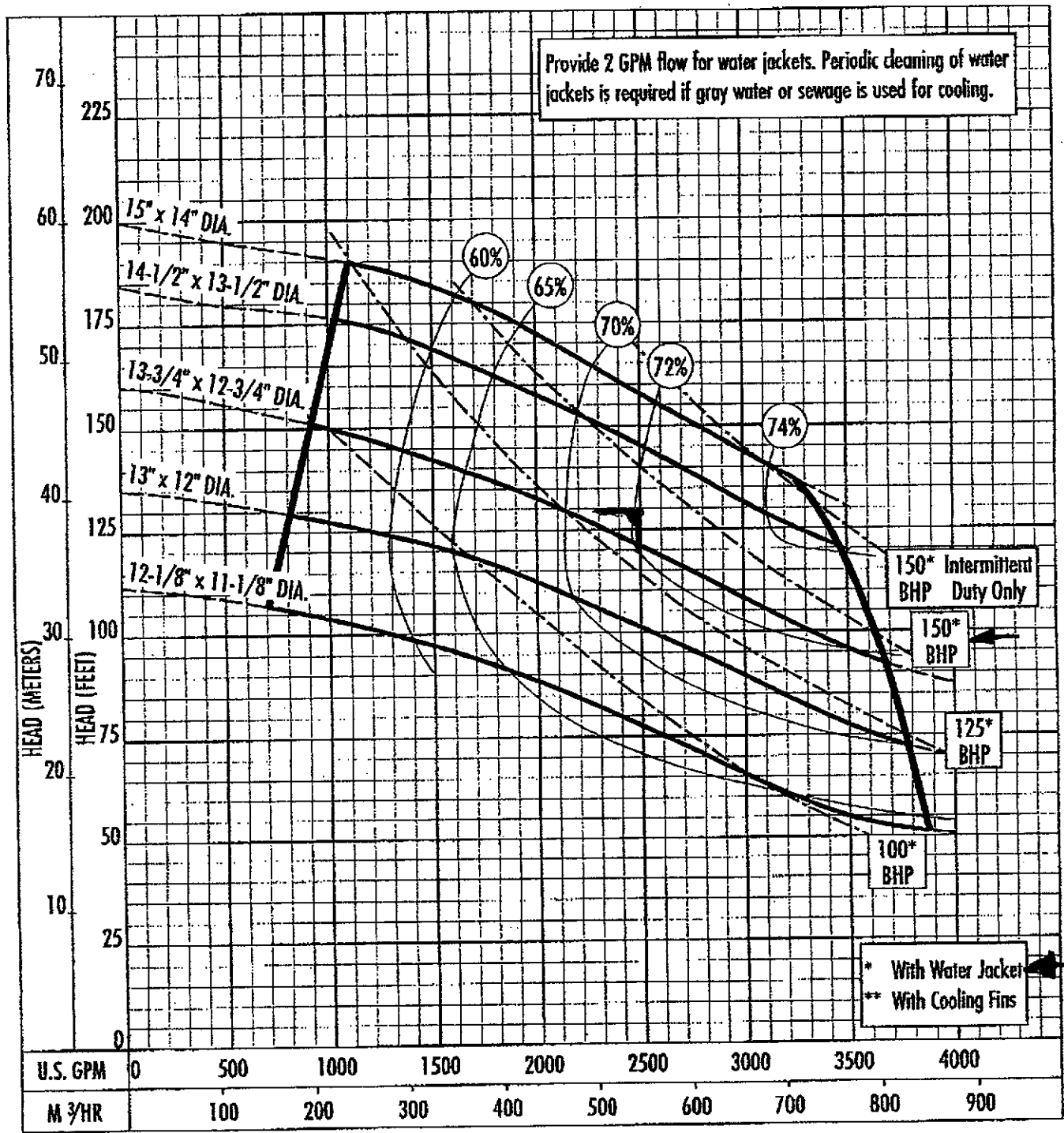
App. 397



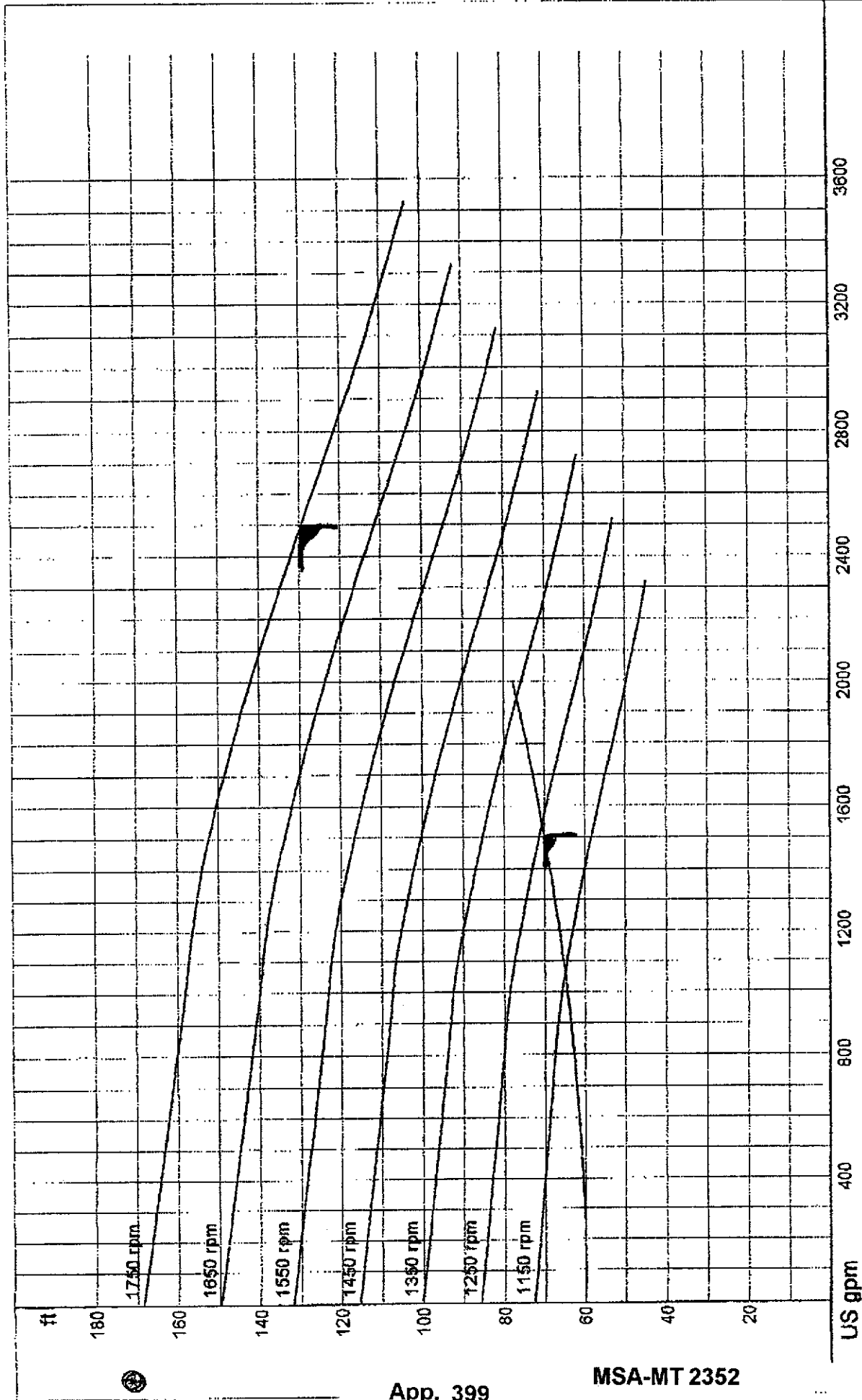
Performance Curve

SD8L

RPM: **1750**
Discharge: **8"**
Solids: **4"**




The curves reflect maximum performance characteristics without exceeding full load (Nameplate) horsepower. All pumps have a service factor of 1.2. Operation is recommended in the bounded area with operational point within the curve limit. Performance curves are based on actual tests with clear water at 70° F. and 1280 feet site elevation.



App. 399

MSA-MT 2352



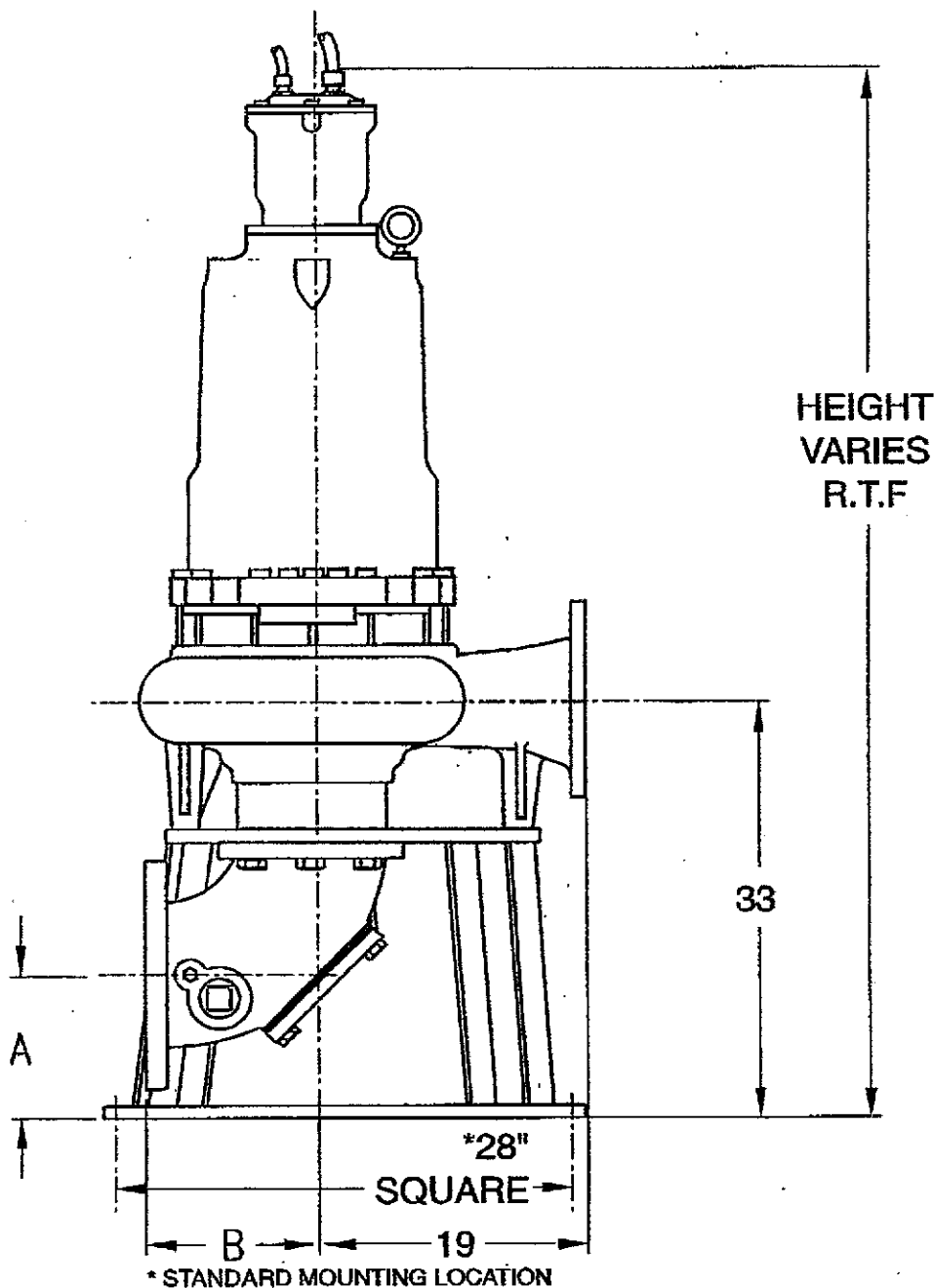
NCLOG-8 - 1800
Size: S8L/S8LX
Speed: 1150 - 1750 rpm
Impeller: 14 in

Catalog: HYD60-01.MPC, vers 2001
Curve: S8L1750

Miller Pump Supply
Sid Himes
04/26/04
Selection file: (untitled)

Dimensional Data SD8L

SD8L



	A	B
8X8 ELBOW	14-7/8	9
8X10 ELBOW	12-7/8	11

NOTE #1: STANDARD POSITION FOR SUCTION IS POSITION #5
 NOTE #2: SUCTION LOCATION CAN NOT BE IN POSITIONS 2,4,6, OR 8
 NOTE #3: STANDARD LOCATION FOR DISCHARGE IS POSITION #1

